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IX. *An Account of the Locusts, which did vast Damage in Walachia, Moldavia, and Transilvania, in the Years 1747 and 1748; and of some Swarms of them, which, in the Months of July and August 1748. came into Hungary and Poland; by a Gentleman who lives in Transilvania.*

Read Feb. 2. 1748-9. **I**T is certain that the Locusts came into

Transilvania from *Walachia* and *Moldavia*, and particularly thro' those narrow Openings in the Mountains, which are commonly called Passes; the most considerable of which, in the Neighbourhood of *Clausenburg*, is called the Pass of the *Red Tower*, and thro' others not far from *Karlstat*, which are common Roads from *Transilvania* into *Moldavia* and *Walachia*.

The first Swarms enter'd into *Transilvania* in *August 1747*: These were succeeded by others, which were so surprisingly numerous, that when they reached the *Red Tower*, they were full four Hours in their Passage over that Place; and they flew so close, that they made a sort of Noise in the Air, by the beating of their Wings against one another. The Width of the Swarm was some Hundreds of Fathoms, and its Height or Density may be easily imagined to be more considerable, inasmuch as they hid the Sun, and darkened the Sky, even to that degree, when they flew low, that People could not know one another at the Distance of twenty Paces.

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But whereas they were to fly over a River that runs in the Vallies of the *Red Tower*, and could find neither Resting-place nor Food; being at length tired with their Flight, one Part of them lighted on the unripe Corn on this Side of the *Red Tower*, such as Millet, *Turkish Wheat*, &c.; another Part pitch'd on a low Wood: Where having miserably wasted the Produce of the Land, they continued their Journey, as if a Signal had been actually given for a March. The Guards of the *Red Tower* attempted to stop their Irruption into *Transilvania* by firing at them; and indeed where the Balls and Shot swept thro' the Swarm, they gave way and divided; but, having fill'd up their Ranks in a Moment, they proceeded on their Journey.

They are of different Forms, according to their different Ages: For when, in the Month of *September*, some Troops of them weré thrown to the Ground by great Rains, and other Inclemency of the Weather, and thoroughly soaked with Wet, they crept along in quest of Holes in the Earth, Dung, and Straw; where, being sheltered from the Rains, they laid a vast Number of Eggs, which stuck togethier by a viscid Juice, and were longer and smaller than what is commonly called an Ant's Egg, very like Grains of Oats. The Females, having laid their Eggs, die like the Silkworm; and we *Transilvanians* found by Experience, that that Swarm which enter'd into our Fields by the *Red Tower*, did not seem to intend remaining there, but were thrown to the Ground by the Force of the Wind, and there laid their Eggs; a vast Number of which being turn'd up, and crush'd by the Plough,

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in the Beginning of the ensuing Spring yielded a yellowish Juice.

In the Spring of 1748. certain little blackish Worms were seen lying in the Fields and among the Bushes, sticking together, and collected in Clusters, not unlike the Hillocks of Moles or Ants. As no body knew what they were, so there was little or no Notice taken of them ; and in *May* they were cover'd by the shooting of the Corn sown in the Winter. But the subsequent *June* discover'd what those Worms were; for then, as the Corn sown in the Spring was pretty high, these Creatures began to spread over the Fields, and become destructive to the Vegetables by their Numbers. Then at length the Country People, who had slighted the timely Warning given them, began to repent of their Negligence ; for, as these Insects were now dispersed all over the Fields, they could not be extirpated without injuring the Corn.

At that time they differ little or nothing from our common Grasshoppers; having their Head, Sides, and Back of a dark Colour, with a yellow Belly, and the rest of a reddish Hue. About the middle of *June*, according as they were hatch'd sooner or later, they were generally a Finger's Length, or somewhat longer, but their Shape and Colour still continued.

Towards the End of *June* they cast off their outward Covering ; and then it plainly appear'd that they had Wings, very like the Wings of Bees, but as yet unripe and unexpanded ; and then their Body was very tender, and of a yellowish Green : Then, in order to render themselves fit for flying, they gradually unfolded their Wings with their hinder Feet,

Feet, as Flies do, And as soon as any of them found themselves able to use their Wings, they soared up, and, by flying round, the others provoked them to join them: And thus their Numbers increasing daily, they took circular Flights of twenty or thirty Yards wide, until they were join'd by the rest; and, after miserably laying waste their native Fields, they proceeded elsewhere in large Troops.

Wheresoever those Swarms happen'd to pitch, they spared no Sort of Vegetable; they eat up the young Corn; and the very Grass; but nothing was more dismal to behold than the Lands in which they were hatch'd; for they so greedily devoured every green thing thereon, before they could fly, that they left the Ground quite bare.

There is nothing to be fear'd in those Places to which this Plague did not reach before the Autumn; for the Locusts have not Strength to fly to any considerable Distance, but in the Months of *July, August*, and the Beginning of *September*; and even then, in changing their Places of Residence, they seem to tend to warmer Climates.

Different Methods are to be employed, according to the Age and State of these Insects; for some will be effectual as soon as they are hatch'd; others when they begin to crawl; and others, in fine, when they are able to fly. And Experience has taught us here in *Transilvania*, that it would have been of great Service, to have diligently sought out the Places where the Females lodged; for nothing was more easy, than carefully to visit those Places in *March* and *April*, and to destroy their Eggs or little Worms with Sticks or Briars; or if they were not to be beat

out of the Bushes, Dunghills, or Heaps of Straw, to set fire to them ; and this Method would have been very speedy, convenient, and successful ; as it has been in other Places. But in the Summer, when they have march'd out of their Spring-Quarters, and have invaded the Corn-fields, &c. it is almost impossible to extirpate them, without thoroughly threshing the whole Piece of Land that harbours them, with Sticks or Flails, and thus crushing the Locusts with the Produce of the Land.

Finally, when the Corn is ripe, or nearly so, we have found, to our great Loss, that there is no other Method of getting rid of them, or even of diminishing their Numbers, but to surround the Piece of Ground with a Multitude of People, who might fright them away with Bells, brass Vessels, and all other Sorts of Noise. But even this Method will not succeed, till the Sun is pretty high, so as to dry the Corn from the Dew ; for otherwise they will either stick to the Stalks, or lie hid under the Grass. But when they happen to be driven to a waste Piece of Ground, they are to be beat with Sticks or Briars ; and if they gather together in Heaps, Straw or Litter may be thrown over them, and set on fire. Now this Method serves rather to lessen their Numbers, than totally destroy them ; for many of them lurk under the Grass or thick Corn, and in the Fissures of the Ground from the Sun's Heat : Wherefore it is requisite to repeat this Operation several times, in order to diminish their Numbers, and consequently the Damage done by them. It will likewise be of Use, where a large Troop of them has pitch'd, to dig a long Trench, of an Ell in Width and Depth,
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and place several Persons along its Edges, provided with Brooms, and such-like things, while another numerous Set of People form a Semicircle, that takes in both Ends of the Trench, and encompasses the Locusts, and, by making the Noise above-mentioned, drive them into the Trench; out of which if they attempt to escape, those on the Edges are to sweep them back, and then crush them with their Brooms and Stakes, and bury them, by throwing in the Earth again.

But when they have begun to fly, there should be Horsemen upon the Watch in the Fields, who, upon any Appearance of the Swarm taking Wing, should immediately alarm the Neighbourhood by a certain Signal, that they might come and fright them from their Lands by all Sorts of Noise; and if, tired with flying, they happen to pitch on a waste Piece of Land, it will be very easy to kill them with Sticks and Brooms, in the Evening, or early in the Morning, while they are wet with the Dew; or any time of the Day in rainy Weather, for then they are not able to fly.

I have already taken notice, that, if the Weather be cold or wet in Autumn, they generally hide themselves in secret Places, where they lay their Eggs, and then die: Wherefore great Care should be taken at this time, when the Ground is freed of its Crop, to destroy them, before they lay their Eggs.

In this Month of *September* 1748. we received certain Intelligence, that several Swarms of Locusts came out of *Walachia* into *Transilvania* thro' the usual Inlets, and took Possession of a Tract of Land in the Neighbourhood of *Clausberg*, near three

Miles in Length; where it was not possible to save the Millet and *Turkish* Wheat from these Devourers.

I am of Opinion, that no Instances of this kind will occur in our History, except what some old Men remember, and what we have experienced; at least there is no Account, that any Locusts came hither, which did not die before they laid their Eggs; however, this is a known Fact; that, about forty Years ago, some Swarms came hither out of *Walachia*, and did vast Damage where-ever they settled; but either left this Country before the End of Summer, or died by the Inclemency of the Weather.

Perhaps better Remedies may be had from other Countries, where this Evil is more common, against next Spring; for the Winter Season is very safe from this Plague.

The Gentleman, to whom the foregoing Account was sent from *Transylvania* to *Vienna*, and who transmitted it hither, has also informed us, that a considerable Number of these Locusts had also come within twenty Leagues of that City; and that one Column of them had been seen there, which was about half an Hour's Journey in Breadth; but of such a Length, that, after three Hours, tho' they seemed to fly fast, one could not yet see the End of the Column. The Eggs of these Animals, which have been preserved in dry Mould, have produced nothing; but those that have been preserved in Mould that was moistened with Water from time to time, gave early in the Spring of 1749. some of these Grasshoppers. The little ones were, soon after they came forth, of the Size nearly of ordinary Flies: They had already the Form of Grasshoppers,
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but they had as yet no Wings. This Observation shews, that the Author of the foregoing Account was mistaken, when he says, " These Insects had at first " the Form of Grubs, or small Worms." They change their Skin several times, but they do not acquire Wings till they have changed for the last time.

The Grasshoppers that were taken in *England* in 1748. have been compared with those that have been sent over from *Hungary* and from *Poland* that same Year, and they have been found to be perfectly of the same kind. There are in Sir *Hans Sloane's* Collection * some of the same sort of Locusts or Grasshoppers, preserved in Spirits of Wine, and which were taken up here above thirty Years since, and are exactly like those from *Egypt* and *Barbary*.

X. *A Letter from Mr. Henry Baker F.R.S. to the President, concerning some Vertebrae of Ammonitæ, or Cornua Ammonis; communicated to Mr. Baker by the Rev. Dr. Miles F. R. S.*

S I R,

Read Feb. 9 1748-9. **I** HAVE now the Honour to lay before you a curious and most extraordinary Fossil, which was lately sent to me for that Purpose by my worthy Friend Dr. *Miles*, of *Tooting*, F. R. S. It consists of 26 Joints, which he calls *Vertebrae*, and I believe supposes to have been the Joints of the Back-Bone or Tail of some Animal; but, upon considering

* See Sir *Hans Sloane's* Hist. of *Jamaica*, vol. I. p. 29.